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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,585	12/18/2001	Suk Won Choi	8733.534.00	6155
30827	7590	06/30/2006	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			LEWIS, DAVID LEE	
1900 K STREET, NW			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2629	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/017,585

Applicant(s)

CHOI ET AL.

Examiner

David L. Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 1. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (6392620 B1).**

**As in claim 1, Mizutani et al. teaches of a ferroelectric liquid crystal display, figures 1 and 2, column 5 lines 41-67, column 6 lines 1-2, comprising:**

a liquid crystal panel including liquid crystal and at least one liquid crystal cell arranged at a crossing area at of a gate line and a data line, **column 5 lines 41-67, figure 2 items 8, 11, 1b;**

a data processor supplying red, green and blue data signals to said at least one liquid crystal cell, **column 8 lines 1-10, figure 2 item 23;**

and a backlight in a stand-by state throughout the duration of a responding period of the liquid crystal corresponding to each of said supplied red, green and

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blue data signals, for generating red, green and blue light at the end of each responding period, **figure 3B item F12 or BL, column 8 lines 60-67,**

wherein the backlight generates the red, green, and blue light in correspondence with the red, green, and blue data signals, **figure 3B item F12 or BL, column 8 lines 60-67, column 10 lines 33-53.**

As shown in figure 2 items 22 and A, Mizutani teaches of a backlight controlling drive unit, controlling timing of lighting red, green, and blue lights, wherein for each non-display state period or "responding period", the backlight unit A was placed in a light off or "standby state". As shown in figure 3B, said response period is represented by F12 or F22, wherein the backlight is not active until the next period F11 and F21.

**However, Mizutani fails to explicitly teach** of supplying only one color data signal to said at least on liquid crystal cell, and only one corresponding backlight.

Mizutani et al. in fact supplies three color data signals corresponding to red, blue, and green. However it would have been obvious to the skilled artisan at the time of the invention to provide for a display supplying on one color, such as red for the reason of displaying strictly red information on a display screen. One skilled in the art could equally have the need to display information on the display

screen that was only blue or green. Each of these occasions would obviously read on the claims limitation of providing only one color data signal.

**Therefore it would have been obvious to the skilled artisan** at the time of the invention to supply on one color data signal because display screen applications are known to provide only one color on a display screen, even though said display screen is capable of full color display, as found in claim 1. Further, wherein because only one color is chosen for display, only one backlight will be chosen for lighting to correspond to said choice.

**As in claim 2, Mizutani et al. teaches of**, wherein said liquid crystal panel comprises: a upper substrate on which a common electrode and a first alignment film are sequentially disposed, figure 1 item 3a, column 5 lines 60-65; and a lower substrate on which a thin film transistor, a pixel electrode and a second alignment film are sequentially disposed, figure 1 item 3b, column 5 lines 60-65; wherein the liquid crystal is a ferroelectric liquid crystal interposed between said upper substrate and said lower substrate, figure 1 item 2, column 6 line 1.

**As in claim 3, Mizutani et al. teaches of**, wherein said backlight includes a backlight driver for supplying an electrical signal to generate red, green and blue light, figure 2 item 22.

**As in claim 4, Mizutani et al. teaches of**, further comprising a backlight controller for supplying a control signal to generate red, green and blue light, figure 2 item 23.

**As in claim 5, Mizutani et al. teaches of** said ferroelectric liquid crystal responds according to said red, green and blue data signals, column 3 lines 15-43.

**As in claim 6, Mizutani et al. teaches of** a method of driving a ferroelectric liquid display, **column 6 lines 1-2**, comprising:

sequentially supplying red, green and blue data signals to a liquid crystal cell of a liquid crystal panel, **column 8 lines 35-45, figure 3A item F1, figure 13 item F11,**

wherein liquid crystal in the liquid crystal cell responds to each of said supplied red, green and blue data signals during a responding period for each of said supplied red, green, and blue data signals, **figure 13 item LC response, column 10 lines 5-25;**

and sequentially generating red, green and blue light at the end of each responding period, wherein red, green, and blue light is generated in

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correspondence with the red, green and blue data signals, **figure 13 item illumination/transmitted light quantify, column 8 lines 35-44, column 10 lines 33-53.**

As shown in figure 2 items 22 and A, Mizutani teaches of a backlight controlling drive unit, controlling timing of lighting red, green, and blue lights, wherein for each non-display state period or "responding period", the backlight unit A was placed in a light off or "standby state". As shown in figure 3B, said response period is represented by F12 or F22, wherein the backlight is not active until the next period F11 and F21.

**However, Mizutani fails to explicitly teach** of supplying only one color data signal to said at least on liquid crystal cell, and only one corresponding backlight.

Mizutani et al. in fact supplies three color data signals corresponding to red, blue, and green. However it would have been obvious to the skilled artisan at the time of the invention to provide for a display supplying on one color, such as red for the reason of displaying strictly red information on a display screen. One skilled in the art could equally have the need to display information on the display screen that was only blue or green. Each of these occasions would obviously read on the claims limitation of providing only one color data signal.

**Therefore it would have been obvious to the skilled artisan** at the time of the invention to supply on one color data signal because display screen applications are known to provide only one color on a display screen, even though said display screen is capable of full color display, as found in claim 6. Further, wherein because only one color is chosen for display, only one backlight will be chosen for lighting to correspond to said choice.

**As in claim 7, Mizutani et al. teaches of** wherein a backlight is in a stand-by state during the responding period, figure 3A item BL.

**As in claim 8, Mizutani et al. teaches of** wherein said red, green and blue data signals sequentially are applied to the liquid crystal cell at least once during a frame period, figure 3A item F1 and F2.

**As in claim 9, Mizutani et al. teaches of** wherein the liquid crystal cell includes a ferroelectric liquid crystal, figure 2 item 2, column 6 line 1.

**As in claim 10, Mizutani et al. teaches of** further comprising: supplying a red data signal to said liquid crystal cell and then irradiating a red light, during a frame period, figure 13 item F11 (R); supplying a green data signal to said liquid crystal cell and then irradiating a green light, during said frame period, figure 13



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item F11 (G); and supplying a blue data signal to said liquid crystal cell and then irradiating a blue light, during said frame period, figure 13 item F11 (B).

**As in claim 11, Mizutani et al. teaches of** wherein after each of the red, green and blue data signals is supplied, there is a time for the liquid crystal to respond to each respective data signal, figure 13 item LC response.

**As in claim 12, Mizutani et al. teaches of** wherein after at least one of the red light, green light and blue light is irradiated for a predetermined time, figure 3A item R, another data signal for another color is immediately supplied, figure 3A item B.

**As in claim 13, Mizutani et al. teaches of** a liquid crystal display device, **figure 2**, comprising:

a liquid crystal panel, **figures 1 and 2, column 5 lines 35-65**, including: a plurality of gate signal lines, **figure 2 item 8, column 5 lines 35-65**;

a plurality of data signal lines, **figure 2 item 11, column 5 lines 35-65**;

liquid crystal cells in a matrix at crossing points of the gate and data signal lines, the liquid crystal cells having a liquid crystal therein, **figure 2 item 1b, column 5 lines 35-65;**

a data driver for supplying data signals to the data signal lines, **figure 2 item 13, column 6 lines 3-17;**

a gate driver for supplying gate signals to the gate signal lines, **figure 2 item 12, column 6 lines 3-17;**

a controller for receiving a plurality of signals from an interface, **figure 2 item 23, column 6 lines 50-60;**

and a backlight in a stand-by state throughout the duration of responding periods as the liquid crystal responds to the data signals after the data signals are supplied to the liquid crystal cells and generating light at the end of each responding period, **figure 2 item A, figure 3A item BL, column 8 lines 60-67, column 10 lines 33-53.**

As shown in figure 2 items 22 and A, Mizutani teaches of a backlight controlling drive unit, controlling timing of lighting red, green, and blue lights, wherein for each non-display state period or "responding period", the backlight unit A was

placed in a light off or "standby state". As shown in figure 3B, said response period is represented by F12 or F22, wherein the backlight is not active until the next period F11 and F21.

**However, Mizutani fails to explicitly teach** of supplying only one color data signal to said at least on liquid crystal cell, and only one corresponding backlight.

Mizutani et al. in fact supplies three color data signals corresponding to red, blue, and green. However it would have been obvious to the skilled artisan at the time of the invention to provide for a display supplying on one color, such as red for the reason of displaying strictly red information on a display screen. One skilled in the art could equally have the need to display information on the display screen that was only blue or green. Each of these occasions would obviously read on the claims limitation of providing only one color data signal.

**Therefore it would have been obvious to the skilled artisan** at the time of the invention to supply on one color data signal because display screen applications are known to provide only one color on a display screen, even though said display screen is capable of full color display, as found in claim 13. Further, wherein because only one color is chosen for display, only one backlight will be chosen for lighting to correspond to said choice.

**As in claim 14, Mizutani et al. teaches of** wherein the data signals include red, green and blue data signals, figure 3A item F1.

**As in claim 15, Mizutani et al. teaches of**, wherein the plurality of signals include a control signal, figure 2 item 23, column 6 lines 50-60.

**As in claim 16, Mizutani et al. teaches of** wherein the plurality of signals include a horizontal synchronization signal, column 6 lines 50-60, wherein said synchronization signal is one of horizontal and vertical as well known.

**As in claim 17, Mizutani et al. teaches of** wherein the plurality of signals include a vertical synchronization signal, column 6 lines 50-60, wherein said synchronization signal is one of horizontal and vertical as well known.

**As in claim 18, Mizutani et al. teaches of** wherein the plurality of signals include an input clock signal, column 7 lines 65-68.

**As in claim 19, Mizutani et al. teaches of** wherein the plurality of signals include a data enable signal, column 7 lines 44-68.

**As in claim 20, Mizutani et al. teaches of** wherein controller is capable of receiving a horizontal synchronization signal and a vertical synchronization signal

and generating a gate start clock and a gate scanning pulse to be supplied to the gate driver, figure 2 item 23.

**As in claim 21, Mizutani et al. teaches of** wherein the controller is capable of receiving data signals and generating red, green and blue data signals and a data enable signal to be supplied to the data driver, figure 2 item 23.

### ***Response to Arguments***

2. Applicant's arguments filed 3/9/2006 are moot in view of the new grounds of rejection. Mizutani would obviously teach of supplying only one color under the condition of displaying only red information on the color display screen, wherein the blue and green information is absent. Likewise if the skilled artisan choose to show only red or blue information the claims limitation would be met. See the above 103(a) rejection in view of Mizutani.

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or

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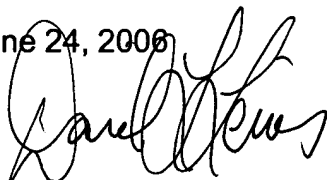
proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

4. Please note that all future correspondences directed to David L. Lewis must be sent to Art Unit 2629.
5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner: David L. Lewis

June 24, 2006

A handwritten signature in black ink, appearing to read "David L. Lewis", is written over the date "June 24, 2006".